MUGABARIGIRA BIEN AIME

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EDUCATION

Sungkyunkwan University, Suwon, South Korea

- **Ph.D.** in **Computer Engineering**, Department of ECE 2015/09 – 2025/08
  - **Thesis**: Context-Aware Navigation for Safe and Efficient Maneuver Control of Moving Objects in Cyber-Physical Systems
  - **Advisor**: Jaehoon Paul Jeong, Professor (pauljeong@skku.edu)
  - **Research areas**: Vehicular Networks, Intelligent Transportation Systems (ITS), Flying Ad Hoc Networks (FANET), Non-Terrestrial Networks (NTN), IoT Systems

- **B.S.** in **Computer Science and Systems**, National University of Rwanda 2005/09 – 2009/07
  - **Graduation Project:** Online Inquiry Systems
  - Computer Science, Faculty of Applied Sciences (FAS) 2009/01 – 2012/10

TEACHING EXPERIENCE

Department of Software, Sungkyunkwan University, Suwon, South Korea

- **Teaching Assistant**: ESW5025-41, Infrastructure Networks and Security Spring Semester, 2021
- **Teaching Assistant**: SWE3022-42, Computer Networks Fall Semester, 2020
- **Teaching Assistant**: WIS5059-41 Wired and Wireless Communications and Computer Spring Semester, 2020

Department of Interaction Science, Sungkyunkwan University, Suwon, South Korea

- **Teaching Assistant**: WIS5059-41 Creative Design Fall Semester, 2015

RESEARCH/WORK EXPERIENCE

College of Computing & Informatics, Sungkyunkwan University, South Korea

- **Position**: Postdoctoral Researcher 2025/09 – present

IoT Lab, Sungkyunkwan University

- **Position**: Associate Researcher 2025/06 – 2025/08
- **Position**: Research/Teaching Assistant 2015/09 – 2025/08
  - **Projects**:
    Software Defined Vehicle, **IITP, Korea**
    An Enhanced Graph Attention Network-based Safety Preserving Mechanism for Efficient Multi-UAV Applications, **NRF, Korea**
    Context-Awareness Safety Driving in Vehicular Networks, **NRF, Korea**

PUBLICATIONS

JOURNALS (SCIE, 1ST-AUTHOR: 1, CO-AUTHOR: 1)

1. ***B. A. Mugabarigira***, Y. Shen, J. Jeong, T. Oh, and H.-Y. Jeong, "Context-Aware Navigation Protocol for Safe Driving in Vehicular Cyber-Physical Systems," *in **IEEE Transactions on Intelligent Transportation Systems**, vol. 24, no. 1, pp. 128 - 138,* Jan. 2023.
2. H. Shahwani, ***B. A. Mugabarigira***, Y. Shen, J. Jeong, and J. Shin, "DAPF: Delay-Aware Packet Forwarding for Driving Safety and Efficiency in Vehicular Networks," *in **IET Communications**, vol. 14, no. 9, pp. 1404–1411*, June 2020.

CONFERENCES

1. Y. Shen, ***B. A. Mugabarigira***, and J. Jeong,"A Deep Reinforcement Learning Framework for Connected Vehicle Route Planning in Urban Environment", *KICS-2025-Winter*, Pyeongchang, Korea, February 5 to February 7, 2025.
2. ***B. A. Mugabarigira***, and J. Jeong, "Context-Aware Navigation Protocol for Safe Flying of Unmanned Aerial Vehicles", *KICS-2024-Winter*, Pyeongchang, Korea, January 31 to February 2, 2024.
3. J. Kwon, ***B. A. Mugabarigira***, and J. Jeong,"Web-Based Car Control and Monitoring for Safe Driving of Autonomous Vehicles", *International Conference on Information Networking (ICOIN)*, Jeju, Korea, January 12-15, 2022.
4. Y. Shen, ***B. A. Mugabarigira***, and J. P. Jeong, "IPv6 Vehicular Communications over IEEE 802.11-OCB Wireless Link," in *KICS Winter Conference 2020*, Korea, Feb 2020.
5. D. Choe, Y. Shen, ***B. A. Mugabarigira***, and J. Jeong, "Extensible Intelligent Simulator Architecture for the Development of Cyber-Physical Systems," *The Third International Conference On Consumer Electronics (ICCE) Asia*, Jeju, Korea, June 24-26, 2018.

6. ***B. A. Mugabarigira***, Y. Shen, D. Choe, and J. Jeong, "Context-Aware Navigator for Road Safety in Vehicular Cyber-Physical Systems," *The Third International Conference On Consumer Electronics (ICCE) Asia*, Jeju, Korea, June 24-26, 2018.

7. ***B. A. Mugabarigira***, Y. Shen, J. Jeong, T. Oh, J. Jun, and S. H. Son, "Design and Implementation of Vehicular Network Simulator for Data Forwarding Scheme Evaluation," *31th International Conference on Advanced Information Networking and Applications Workshops - Device Centric Cloud (DC2)*, Taipei, Taiwan, Mar. 2017.

PATENTS

1. J. Jeong, ***B. A. Mugabarigira***, Y. Shen, "Apparatus and method for providing basic support for ipv6 networks operating over 5g vehicle-to-everything communications," *US12401617B2*, **US Patent Granted**, Aug. 2025.
2. J. Jeong, ***B. A. Mugabarigira***, Y. Shen, "Context-aware navigation protocol for safe driving," *US11753033B2*, **US Patent Granted**, Sep. 2023.

AWARDS & SCHOLARSHIPS

- *Outstanding International Students Scholarship for STEM majors*, **Sungkyunkwan University** 2015/09 – 2019/07

  Full-tuition scholarship.

PROFESSIONAL AFFILIATIONS & ACTIVITIES

Internet Engineering Task Force (IETF) 2017 – Present

- IETF Hackathons for Development of IPv6-based Vehicular Networks.
- Standards Developments

LANGUAGES

- Kinyarwanda: Native language.
- English: Fluent (listening, speaking, reading, writing).
- French: Fluent (listening, speaking, reading, writing).

REFERENCES

- **Professor, Jaehoon Paul Jeong**
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- **Professor, Jitae Shin**
  Electronic and Electrical Engineering, Sungkyunkwan University
  Room No. 23518 The First Engineering Building 2066 Seobu-ro, Jangan-gu, Suwon-si, Gyeonggi-do 16419, Republic of Korea
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- **Assistant Professor, Yiwen (Chris) Shen**
  Department of Software & Computer Engineering, Ajou University
  206 Worldcup-Ro, Yeongtong-Gu, Suwon, Gyeonggi-Do 16499 Republic of Korea
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